



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,183	11/26/2003	Hidehiko Hiramatsu	117865	6597
25944	7590	05/08/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER HODGE, ROBERT W	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 05/08/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/721,183

Applicant(s)

HIRAMATSU ET AL.

Examiner

Robert Hodge

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7-9,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 3/14/07 have been fully considered but they are not persuasive. Applicants state that Yamamoto does not teach the intended use of the instant invention, i.e. determining a pressure difference between a suction side and a discharge side of the off-gas circulating means. This is not found persuasive because the Examiner preemptively addressed this argument on page 4 of the Non-Final Office Action dated 11/15/06, which will be further clarified. Functional limitations (i.e. intended use) are only given patentable weight in as much as the structure that is implied by said limitations. As can be seen in figure 2 there is a pressure gauge 10 located at the suction side of the ejector pump 3 and a pressure gauge 14 located at the discharge side of the ejector pump. Therefore because the structure is present to determine a pressure difference across the ejector pump, Yamamoto reads on the functional limitations as recited in the instant claims and Yamamoto is therefore **capable of** (emphasis added) performing said function. Therefore the prior art rejections will be maintained.

The Examiner acknowledges that claims 3, 6 and 10 have been canceled and the subsequent limitations have been added to claims from which they depended.

The Examiner acknowledges applicants' amendment to the Title of the Disclosure, the new title is accepted by the Examiner and is thus entered.

Applicant's arguments, see Remarks, filed 3/14/07, with respect to the rejection of claims 5 and 9 under 35 U.S.C. 112, second paragraph have been fully considered

and are persuasive. The rejection of claims 5 and 9 under 35 U.S.C. 112, second paragraph has been withdrawn.

With regards to the provisional obviousness type double patenting rejection because the case is not in a condition for allowance the rejections will be maintained.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4, 5, 7-9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Patent Abstracts of Japan 09-213353 hereinafter Yamamoto.

With regards to claims 1 and 8 Yamamoto teaches a fuel cell system comprising a fuel cell (1), a hydrogen supply apparatus (2), a hydrogen supply path (4), an off-gas circulation path (5) an off-gas circulation means such as an ejector pump, which has a nozzle disposed in the hydrogen supply path and is situated to suck off-gas (3), a main stream hydrogen detecting means (11 and 14), an off-gas circulation amount detecting means (10) an impurity removing means (i.e. purge 8), wherein said off-gas circulating means can be variably controlled (paragraph [0013]), see abstract, figure 2 and paragraphs [0006]-[0016]. The Examiner acknowledges that applicants have used language consistent with 35 U.S.C. 112, sixth paragraph and therefore invokes said statute. Therefore said off-gas circulating means can be anything that recycles the off-gas to the fuel inlet stream and can be any number of devices including but not limited to, conduit(s), pump(s), blower(s) and/or ejector(s), said main stream hydrogen

detecting means and off-gas circulation amount detecting means can be any number of devices including but not limited to flow meter(s), pressure sensor(s), and/or hydrogen sensor(s), and said impurity removing means can be any number of devices including but not limited to purge line(s), water-gas separator(s) and/or filter(s).

With regards to claims 1, 4, 5, 7-9, 11 and 12 applicants recite functional limitations in apparatus claims. As long as the prior art is capable of performing the same function of the instant invention then it will read on the functional limitations in the claims. Therefore because all of the structure of the instant claimed invention has been found in the prior art it reads on the claims as recited. Applicants are also directed to paragraph [0005] where Yamamoto discloses controlling the fuel supply based on the pressure of the recirculating gas and if the pressure falls below a predetermined value the fuel flow rate to the fuel cell is increased and paragraph [0006], where Yamamoto discloses that the flow rate of the recirculated gas (i.e. off-gas) will increase if the load demand becomes large which is directly related to the power generation request.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of U.S. Pre-Grant Publication No. 2003/0180599 hereinafter Kamihara.

Yamamoto teaches everything in the above 102 rejection.

Yamamoto does not teach that a pressure sensor is located at the inlet of the ejector pump.

Kamihara teaches a fuel cell system comprising a fuel cell (1), a hydrogen supply apparatus (3), a hydrogen supply path (4), an off-gas circulation path (8) an off-gas circulation means such as an ejector pump, which has a nozzle disposed in the hydrogen supply path and is situated to suck off-gas (10) a main stream hydrogen detecting means (18 and 6, which are pressure sensors), and an impurity removing means (i.e. purge 9), see abstract, figure 15 and paragraphs [0087]-[[0096]].

At the time of the invention it would have been obvious to one having ordinary skill in the art to include a pressure sensor at the inlet of the ejector of Yamamoto as taught by Kamihara in order to be able to measure the pressure difference across the ejector to determine how much hydrogen is being provided to the fuel cell stack.

The Examiner notes that applicants do not specifically claim pressure sensors at the inlet or outlet of the ejector in claim 2, but in order for a pressure to be measured at the upstream and discharge of the ejector pump some sort of structure must be present to perform said function, therefore as stated above the main stream hydrogen amount detecting means in this scenario can be multiple pressure sensors.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

Art Unit: 1745

from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4, 5, 7-9, 11 and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 6-8, 19-22, 27, 29 and 30 of copending Application No. 11/283,722. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the instant claims fully encompasses the scope of the claims in copending Applications 11/283,722, especially due to the use of 35 U.S.C. 112, sixth paragraph in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 2, 4, 5, 7-9, 11 and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 10, 14 and 17 of copending Application No. 11/410,159. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the instant claims fully encompasses the scope of the claims in copending Applications

11/410,159, especially due to the use of 35 U.S.C. 112, sixth paragraph in the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RWH


JONATHAN CREPEAU
PRIMARY EXAMINER